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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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Technology Center 2100

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 09/535,206
Filing Date: March 27, 2000
Appellant(s): KODIALAM ET AL.

John E. Curtin
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 29, 2004.

(1)   ***Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

(2)   ***Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or

be directly affected by or have a bearing on the decision in the pending appeal is contained in the

brief.

(3)   ***Status of Claims***

The statement of the status of the claims contained in the brief is correct.

(4)   ***Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in

the brief is correct.

(5)   ***Summary of Invention***

The summary of invention contained in the brief is correct.

(6)   ***Issues***

The appellant's statement of the issues in the brief is correct.

(7)   ***Grouping of Claims***

Appellant's brief includes a statement that: claims 1-4 stand or fall together; claims 5, 7-

10 stand or fall together; and claim 6 stands for fall together.

(8)   Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9)   Prior Art of Record

"Design of a Fast Restoration Mechanism for Virtual Path-Based ATM Networks," by

Chao-Ju Hou ("Hou").

(10)   Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by *Design of a*

Fast Restoration Mechanism for Virtual Path-Based ATM Networks," an article written by Chao-

Ju Hou ("Hou").

Regarding claim 1, Hou teaches a method of dynamically establishing restorable paths in

an information network in response to arriving traffic requests, the networking having a number

of nodes and links between corresponding pairs of nodes, comprising:

receiving requests at a first node of the network for transmission of traffic to a second

node of the network, wherein a given request specifies a desired transmission bandwidth for an

active path and a backup path to be established between the first and the second nodes (Abstract; Introduction, $2^{nd} - 3^{rd}$ paragraph; Preliminaries, $1^{st} - 2^{nd}$ paragraph);

distributing information to nodes in the network (page 362, left column, 3rd paragraph, lines 9-14, figure 1) concerning (a) total bandwidth reserved by each link in the network for all active paths currently defined in the network (page 361, 3rd paragraph, line 1 to page 362, line 13; Preliminaries, $1^{st} - 4^{th}$ paragraph), and (b) total bandwidth reserved by each link in the network for all backup paths currently defined in the network (page 361, 3rd paragraph, line 1 to page 362, line 13; Preliminaries, $1^{st} - 4^{th}$ paragraph);

identifying potential active links in the network an active path in response to a given request, wherein the potential active links each have an available bandwidth at least equal to the bandwidth specified by the given request (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs);

identifying potential backup links in the network for a backup path for restoring the active path after the given request has arrived, wherein the potential back links each have an available bandwidth at least equal to the desired transmission bandwidth specified by the given request (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs; page 364, col. 1, line 31 to col. 2, lines 12); and

formulating an active and a backup path for each given request from among the potential active links and the potential backup links identified in response to the given request (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs, and Restoration of Failed Primary VPs).

Regarding claim 2, Hou teaches the method of claim 1, including determining the

available bandwidth of a potential backup link having a certain total bandwidth capacity, by

subtracting from the total bandwidth capacity (a) the total bandwidth reserved by the link for all

current active paths through the link, and (b) the total bandwidth reserved by the link for all

currently backup paths through the link (Overview of Proposed Fast Restoration Mechanism,

Establishment of Backup VPs, Problem 1).

Regarding claim 3, Hou teaches the method of claim 1, including defining each backup

path in the network to be link disjoint from its corresponding active path (Overview of Proposed

Fast Restoration Mechanism, Problem 1).

Regarding claim 4, Hou teaches the method of claim 1, including defining each backup

path in the network to be node disjoint from its corresponding active path (Overview of Proposed

Fast Restoration Mechanism, Problem 1).

Regarding claim 5, Hou teaches a method of dynamically establishing restorable paths in

an information network in response to arriving traffic requests, the network having a number of

nodes and links between corresponding pairs of nodes, comprising:

receiving requests at a first node of the network for transmission of traffic to a second

node of the network, wherein a given request specifies a desired transmission bandwidth for an

active path a backup path to be established between the first and the second nodes (Abstract;

Introduction, 2nd – 3rd paragraph; Preliminaries, 1st – 2nd paragraph);

selecting active links in the network to form the active path in response to a given

request, wherein the active links each have an available bandwidth corresponding to the

bandwidth specified by the given request (Preliminaries, $1^{st} - 4^{th}$ paragraph); and

selecting backup links in the network to form the backup path for restoring the formed

active path after the given request has arrived, by using a maximum total bandwidth reservation

among the active links selected to form the active path to determine a required bandwidth

reservation for each backup link selected to form the backup path (page 361, 3rd paragraph, line 1

to page 362, line 13; Preliminaries, $1^{st} - 4^{th}$ paragraph; figure 2).

Regarding claim 6, Hou teaches the method of claim 5, including distributing information

to nodes in the network concerning (a) total bandwidth reserved by each link in the network for

all active paths currently formed in the network, and (b) total bandwidth reserved by each link in

the network for all backup paths currently formed in the network (Overview of Proposed Fast

Restoration Mechanism, Establishment of Backup VPs; page 364, col. 1, line 31 to col. 2, lines

12).

Regarding claim 7, Hou teaches the method of claim 5, including determining if each

potential backup link for the backup path to be formed is capable of accommodating the required

bandwidth reservation for the active path to selecting the potential backup link (Overview of

Proposed Fast Restoration Mechanism, Establishment of Backup VPs, Problem 1).

Regarding claim 8, Hou teaches the method of claim 7, wherein said determining step

includes comparing the total bandwidth reserved by each potential backup link for all currently

backup paths in the network, with the required bandwidth reservation for the backup path to be

formed (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs,

Problem 1).

Regarding claim 9, Hou teaches the method of claim 5, including defining each backup

path in the network to be link disjoint from its corresponding active path (Overview of Proposed

Fast Restoration Mechanism, Problem 1).

Regarding claim 10, Hou teaches the method of claim 5, including defining each backup

path in the network to be node disjoint from its corresponding active path (Overview of Proposed

Fast Restoration Mechanism, Problem 1).

(11)   Response to Argument

The Patent Office has objected to the specification because it fails to include a detail

description of figure 6. Appellants have included an amendment to the specification in the

appeal brief. The objection is now withdrawn.

Regarding claims 1-4, Appellants assert that Hou fails to disclose "distributing

information to nodes in a network related to: (a) total bandwidth reserved by each link in the

network for all active paths currently defined in the network; and (b) total bandwidth reserved by

each link in the network for all backup paths currently defined in the network, as recited in claim

1." The Patent Office respectfully submits that these limitations are indeed taught in the Hou

reference. As can be seen in figure 1 of the reference, each node on the network is equipped

(distributed) with a VP restoration manager, which includes information on the incident links,

the neighboring nodes, and the VP routing node table (see figure 1). The information includes a

reserved bandwidth for each primary path (page 361, 3rd paragraph, line 1 to page 362, line 13;

Preliminaries, 1st – 4th paragraph; the primary path is interpreted as active path), and a reserved

bandwidth for each backup path (page 361, 3rd paragraph, line 1 to page 362, line 13;

Preliminaries, 1st – 4th paragraph). Therefore Hou does disclose distributing information to

nodes in a network related to bandwidth.

Regarding claims 5 and 7-10, Appellants assert that "Hou cannot disclose selecting

backup links in the network to form a backup path for restoring the formed active path after the

given request has arrived, by using a maximum total bandwidth reservation among the active

links selected to form the active path to determine a required bandwidth reservation for each

backup link selected to form the backup path, as recited in claim 5." The Patent Office

respectfully submits that these limitations are taught in the Hou reference. As admitted by

Appellants on page 9, Hou discloses in figure 2 that only links with *sufficient* bandwidth are

included in a list that contains potential backup links. By being sufficient, only a minimum

amount of bandwidth is reserved for backup links while the rest is reserved for active links. The

total bandwidth is a combination of the bandwidths reserved for active and backup links, since

the minimum bandwidth is used for backup, the remaining bandwidth is used for active links,

which is maximum in the total bandwidth capacity.   Therefore Hou does disclose this limitation.

Claim 6 includes similar features as claim 1, therefore is also rejected under the same
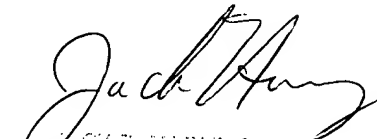
rationale.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

ANB
August 11, 2004

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